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10/813,529	03/30/2004	Tadahiko Kubota	09792909-5847	6143

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EXAMINER

ECHHELMMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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04/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/813,529

Applicant(s)

KUBOTA ET AL.

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) 9-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 1-25-08

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed January 8, 2008. Claim 1 has been amended. Claim 2 has been cancelled. Claims 9-18 were previously withdrawn. Claims 1 and 3-8 are rejected finally for the reasons given below.

Information Disclosure Statement

2. The information disclosure statement filed January 25, 2008 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

3. The 112 second paragraph rejection of claim 1 from the October 9, 2007 Office Action is withdrawn in light of the amendment.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "1 ≤ n ≤ 12" should be "1 ≤ n ≤ 12" since the limitation that was

previously disclosed in the claim required that n be less than or equal to 12, and not greater than or equal to 12 since it is unclear how n can be ≥ 1 and ≥ 12 . For the purposes of prosecution the limitation will be interpreted to be $1 \leq n \leq 12$.

Claim Interpretation

6. The product-by-process limitations of claim 4 are not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (see In re Thorpe, 227 USPQ 964, (CAFC 1985), In re Brown, 173 USPQ 685 (CCPA 1972), and In re Marosi, 218 USPQ 289, 292-293 (CAFC 1983)). See below.

7. Claim 1 contains new limitations concerning the anode and cathode active materials that have not been underlined. The claim language is drawn to materials capable of inserting and extracting lithium, with the anode material specifically being capable of inserting and extracting lithium at a relatively smaller rate than the cathode active material, allowing lithium metal to precipitate on a surface of the anode material during charge. These properties are inherent to the materials. The court has held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See also MPEP 2112 and 2112.01. When the Examiner has provided a sound basis for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product

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shown in the prior art does not possess the characteristics of the claimed product. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3, 4 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Sonoda et al. (US 2002/0028389).

Sonoda et al. teach a non-aqueous electrolyte for use in an electrochemical device such as a lithium battery (abstract, [0001]). As for claim 1, it is well known to those having ordinary skill in the art that a lithium battery contains a cathode, an anode and an electrolyte.

The electrolyte of Sonoda et al. contains a solute represented by formula (1): $MBR^1R^2R^3R^4$ (abstract, [0010]). R^1 , R^2 , R^3 and R^4 may be represented by C_nF_{2n+1} or $C_mF_{2m+1}SO_2$ ([0011]). Additionally, since formula (1) is in solution in the electrolyte, it can be considered as its cation and anion: M^+ ($BR^1R^2R^3R^4$)⁻ ([0019]).

A specific example of the material represented by formula (1) includes $\text{LiB}(\text{CF}_3)_4$ ([0012]), which is identical to the material disclosed in the instant specification (see paragraph 5, above).

As for the limitations concerning the anode and cathode active materials, Sonoda et al. disclose that the negative active material is lithium or material capable of absorbing and desorbing lithium ([0043]) and that the positive active material is a transition metal complex oxide ([0051]). These materials are the same as the materials disclosed in the instant specification for the anode and cathode active materials, therefore the negative active material is inherently capable of inserting and extracting lithium at a relatively smaller rate than the cathode active material. The court has held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See also MPEP 2112 and 2112.01. When the Examiner has provided a sound basis for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

As for claim 3, examples of the negative material include carbon materials, TiS_2 , and alkali metals such as silicon ([0044]).

With regard to claim 4, Sonoda et al. teach that the anode consists of the material coated onto the surface of a current collector ([0042]). Since this matches the

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structure of the instant claim, the method by which it was formed is not given patentable weight (see paragraph 6, above).

Regarding claims 6-8, the electrolyte of Sonoda et al. may also include additional anions such as one or a mixture of PF_6^- , BF_4^- , ClO_4^- , AsF_6^- or $\text{N}(\text{CF}_3\text{SO}_2)_2^-$ ([0068]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda et al.

The teachings of Sonoda et al. as discussed above are incorporated herein.

Sonoda et al. teach the battery of claim 1 but fail to teach that the moisture content in the electrolyte is 100 ppm or less at a mass ratio in relation to the electrolyte.

Sonoda et al. teach that too much moisture in the electrolyte causes it to decompose ([0004]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the lowest tolerable amount of moisture in the electrolyte to prevent decomposition, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.05 (II B).

Response to Arguments

12. Applicant's arguments filed January 8, 2008 have been fully considered but they are not persuasive. Applicant argues that Sonoda et al. do not teach an anode containing an active material capable of inserting and extracting lithium at a relatively smaller rate than the cathode active material, allowing lithium metal to precipitate on a surface of the anode during charge. The examiner disagrees.

As discussed above, any material capable of inserting and extracting lithium at a relatively smaller rate than the material of the other electrode inherently meets the limitations of the claims. It is not necessary that the reference explicitly teach the precipitation as long as the material is capable of causing precipitation. Further, when the claim is given its broadest reasonable interpretation, it is not required that a precipitant form, only that the active material be capable of forming a precipitant, which would occur when the rate of inserting and extracting lithium of the first material is smaller than the rate of inserting and extracting lithium of a second material in the other electrode.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee

/Susy N Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795